October 3, 1983

F:12
ACT/049/009

Memo to File:

RE: Test Plot Success Evaluation
Sunshine Mining Company
Burgin Project
ACT/049/009
Utah County, Utah

On July 29, 1983, Susan Linner, reclamation biologist and Tom Portle, reclamation soils specialist, visited the above-mentioned site to sample test plots and make observations.

Very good revegetation was noted on the topsoil stockpile as a whole. Blazing star (Mentzelia spp.), prickly poppy (Argemone spp.), yellow sweet clover (Melilotus officinalis), wooly mullin (Verbascum thapsus) and some mint represented the forbs. Grasses included: Indian ricegrass (Oryzopsis hymenoides); crested wheatgrass (Agropyron cristatum); Russian wildrye (Elymus junceus); and cheatgrass (Bromus techtatum) were observed. The only shrub present was rubber rabbitbrush (Chrysothamnus nauseosus).

Transects were performed to ascertain preliminary results of test plots. Results expressed as percent cover are given below:

Acid Waste Rock

Treatment	Percent Cover
A. Seed and Lime	3.5
B. Seed, Lime and Fertilizer	2.6
C. Seed, Lime and Mulch	1.3
D. Seed, Lime, Fertilizer and Mulch	6.2

Neutral Waste Rock

E. Seed only	1.5
F. Seed and Fertilizer	6
G. Seed and Mulch	1
H. Seed, Fertilizer and Mulch	1.3

Soil Stockpile

I. Seed only	34
J. Seed and Fertilizer	46
K. Seed and Mulch	25
L. Seed, Fertilizer and Mulch	35

From these results, a few observations can be made.

1. Mulch appeared to have a negative effect except in the acid waste rock condition in which case it appeared to be beneficial only when combined with fertilizer.

2. Fertilizer was clearly beneficial except in the acid waste rock condition where it was beneficial when combined with mulch.

Comments and Suggestions:

1. It appears that reclamation will be possible at this minesite.

2. It appears that the application of mulch should be discontinued except when combined with lime and fertilizer in the acid waste rock condition.

3. Fertilization appeared beneficial in all conditions.

4. It would be useful to determine the most economical use of existing topsoil. In order to do this, test plots using varying depths of topsoil should be implemented since the soil condition was dramatically more successful than any other.

5. Establishment on test plots benefited greatly from the high moisture year. One would probably not expect to replicate these results in a normal year.

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